openreach

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Issue 4.1

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Suppliers' Information Note

For The Openreach Network

Broadcast Access: 1.485GBit/s

Service and Interface Description

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CONTENTS

1 INTRODUCTION 3

2 SERVICE OUTLINE 3

3 SERVICE AVAILABILITY 4

4 TECHNICAL SPECIFICATION 5

4.1 OVERVIEW 5
4.2 STANDARDS COMPLIANCE 5
4.3 INTERFACE PRESENTATION 5
4.4 VIDEO FORMATS SUPPORTED 5
4.4.1 Standard Definition (270MBit/s SD-SDI) formats supported 5
4.4.2 High Definition (1.485GBit/s HD-SDI) formats supported 5
4.5 TEST PATTERNS 6

5 FURTHER INFORMATION 6

6 REFERENCES 7

7 GLOSSARY 7

8 HISTORY 7

FIGURES

FIGURE 1. - SERVICE CONFIGURATION 3
FIGURE 2. – CHANNEL VARIANTS 4

TABLES

TABLE 1 – INTERFACE PRESENTATION 5

1 Introduction

This Suppliers Information Note (SIN) describes Openreach's 1.485GBit/s Broadcast Access service and provides technical information for customers (also referred to as Communications Providers – CPs), terminal equipment manufacturers and suppliers.

2 Service outline

Openreach's 1.485GBit/s Broadcast Access service provides optical transportation of compliant, framed signals which are presented electrically to Openreach on coaxial cable. The service conforms with SMPTE Television Standard 292 [1] for High definition-serial digital interface video (HD-SDI).

This is an access service, which primarily allows the transportation of 1.485GBit/s Broadcast video circuits over fibre infrastructure, utilising new network terminating equipment (NTE).

The service is limited to a maximum fibre route length of 70Km. Route distance checks are carried out as part of the initial survey work, when an order has been placed.

A main link is limited to a maximum of 35Km radial distance measured between the Openreach Serving exchanges (intermediate and host exchanges) at each end of a Broadcast Access service.

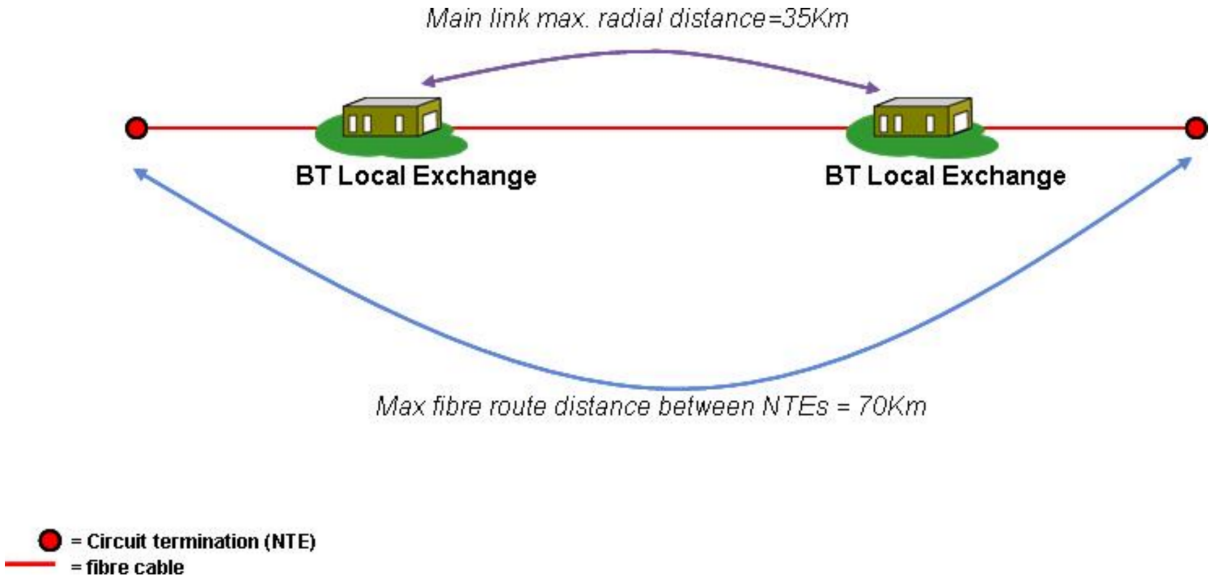
Main link max. radial distance=35Km
BT Local Exchange
BT Local Exchange
Max fibre route distance between NTEs = 70Km
= Circuit termination (NTE)
= fibre cable

Figure 1 - Service Configuration

Please refer to the Broadcast Access product description for details of the circuit options available (http://www.openreach.co.uk/orpg/home/products/ethernetservices/broadcastaccess/broadcastaccess.doc)

3 Service availability

1.485GBit/s Broadcast Access circuits are available on a point to point basis within the UK.

The product will be available with a choice of unidirectional and bidirectional channel variants. All channels will operate at the same requested circuit bandwidth. These are as follows:

- Single channel unidirectional
- Dual channel unidirectional
- Quad channel unidirectional
- Single channel bidirectional
- Dual channel bidirectional
- Quad channel: dual unidirectional plus single bidirectional

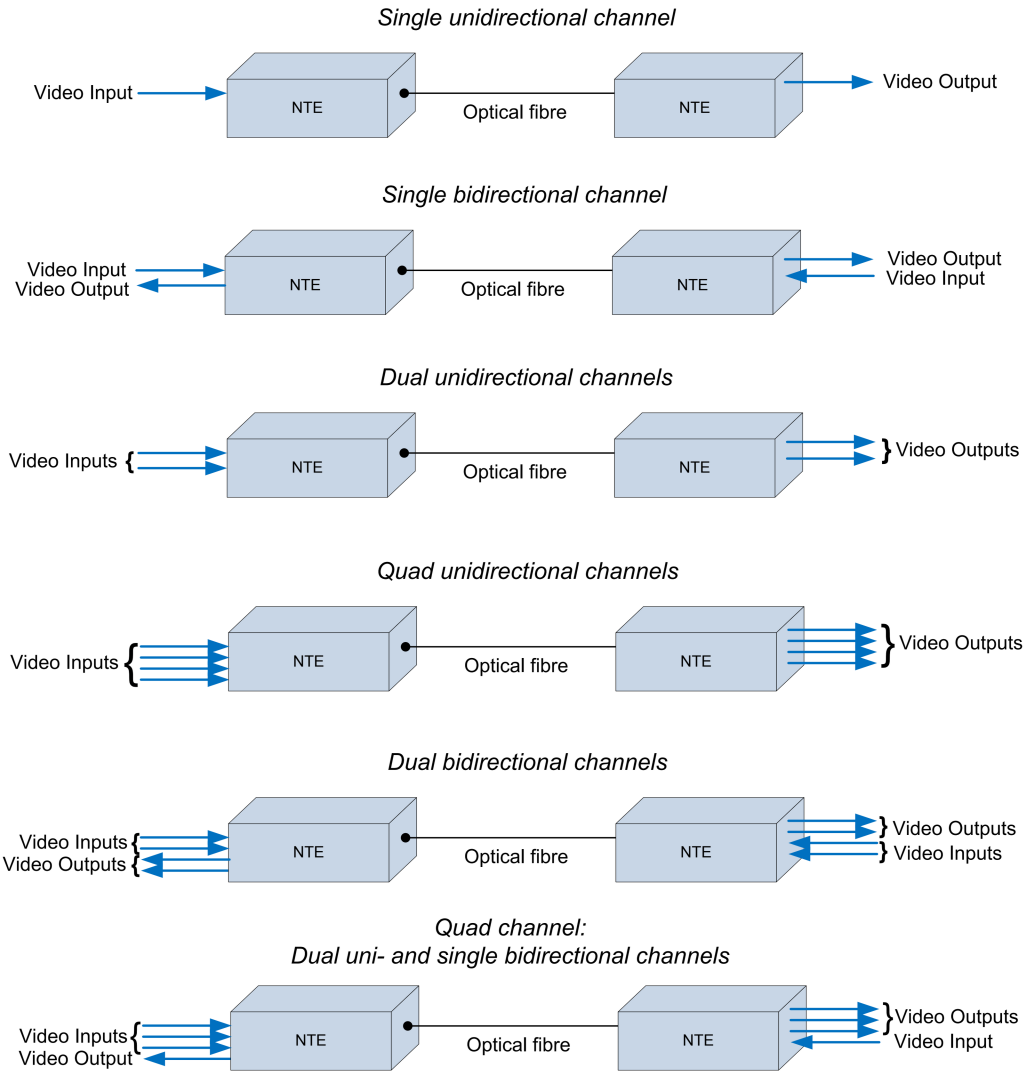

Figure 2 – Channel Variants

4 Technical specification

4.1 Overview

This product allows compliant 1.485GBit/s circuits to be transported between locations in the UK using Openreach's telecommunications optical fibre infrastructure. This is achieved by utilising specific NTEs, which perform electrical to optical and optical to electrical signal conversion at each end of an optical fibre.

The 1.485Gbit/s customer interface cards can automatically detect and adapt to support a 270Mbit/s input signal, therefore if a CP wishes to utilise a service for both Standard Definition (270M bit/s) and High Definition (1.485Gbit/s)signals this can be achieved by purchasing the 1.485Gbit/s product variant.

4.2 Standards compliance

Customer signals presented to the NTE for transportation must comply with SMPTE Standard 292. Likewise, the signal *handed back* to the customer after transportation will comply with these requirements.

4.3 Interface presentation

The following interfaces are provided by the NTE:

Interfaces at the NTE	Electrical presentation	Physical presentation
270Mbit/s Input/output	ITU-R G.656 [2], SMPTE-259M [3] and ETSI EN50083 [4]	Customer connection - 75 Ohm BNC
1.485Gbit/s Input/Output	SMPTE 292 [1]	Customer connection - 75 Ohm BNC

Table 1 – Interface presentation

CP connection to/from the NTE will be done directly to designated ports at the rear of the NTE chassis, there will be no patch panel interface. Ports to be used will be allocated when the CP procures the service.

4.4 Video Formats Supported

This product supports the following video formats:

4.4.1 Standard Definition (270MBit/s SD-SDI) formats supported

- 525/59.94
- 625/50

4.4.2 High Definition (1.485GBit/s HD-SDI) formats supported

- 720p23.98
- 720p24
- 720p25

- 720p29.97
- 720p30
- 720p50
- 720p59.94
- 720p60
- 1035i59.94
- 1035i60
- 1080i50/1080sF25
- 1080i59.94/1080sF59.94
- 1080i60/1080sF30
- 1080p23.98
- 1080p24
- 1080p25
- 1080p29.97
- 1080p30
- 1080sF23.98
- 1080sF24

The product also supports 270MBit/s DVB- ASI

4.5 Test Patterns

The cards have an internal test pattern generator, which can help to keep circuits live and aid testing. This takes the form of a pre-defined 'colour bars' test pattern.

The test pattern will be enabled by default on 'A' end cards and disabled on 'B' end cards, and will be set to 1.485GBit/s (HD-SDI) to correspond with the upper limit of the service provided. The test pattern can be enabled/disabled upon request. Please refer to the Broadcast Access product and process descriptions.
Note that a slightly different pattern is used for each of the three rates: 270Mbit/s (SD-SDI) – SIN474 refers, 1.485GBit/s (HD-SDI) SIN 475 refers or 3GBit/s (3G-SDI) – SIN507 refers.

5 Further information

For enquiries concerning connection availability between particular sites and for further "sales and marketing" information about this service, please contact your Openreach Account Manager or Openreach Customer Business Manager.

See also http://www.openreach.co.uk

For technical queries regarding the content of this document please submit an email query to the following address: https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do

If you have enquiries relating to this document then please email: orsinsfa@openreach.co.uk

6 References

[1]	SMPTE 292	TV Standard. Mapping and Interconnects; 1.5GBit/s SDI.
[2]	ITU-R Recommendation BT.656	Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601
[3]	SMPTE Standard 259M	For Television — SDTV Digital Signal/Data — Serial Digital Interface
[4]	ETSI EN50083	Interfaces for CATV/SMATV Headends and similar Professional Equipment

For further information or copies of referenced sources, please see document sources at https://www.openreach.co.uk/orpg/home/helpandsupport/sins/sins.do

7 Glossary

BNC	Bayonet Neill-Concelman Connector, Industry standard broadcast coaxial connector.
CP	Communications Provider.
HD-SDI	High Definition-Serial Digital Interface.
ITU-R	International Telecommunication Union – Radiocommunication Sector. ITU-R was formally known as CCIR
NTE	Network Terminating Equipment.
SDI	Serial Digital Interface.
SIN	Suppliers' Information Note.
SMPTE	The Society of Motion Picture and Television Engineers.

8 History

Issue 1	30 November 2007	First issue
Issue 1.1	5 June 2007	Issued to clarify that 1.485Gbit/s service can support 270Mbit/s signals.
Issue 2	June 2011	Introduction of 'Dual channel unidirectional + Single channel bidirectional' and specification of the video formats supported
Issue 3	January 2014	Updated to include SMPTE SDI standard
Issue 4	August 2014	Addition of section 4.5 (Test Patterns) Change SINet site references from http://www.sinet.bt.com to http://www.btplc.com/sinet/
Issue 4.1	August 2020	Changes to branding, from BT to Openreach including changes to reflect new Openreach SIN site and Openreach SIN email address

Issue 4.1	July 2021	Annual Review – no changes required – issue remains unchanged.
Issue 4.1	July 2022	Annual Review – no changes required – issue remains unchanged.
Issue 4.1	July 2023	Annual Review – no changes required – issue remains unchanged.
Issue 4.1	July 2024	Annual Review – no changes required – issue remains unchanged.

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